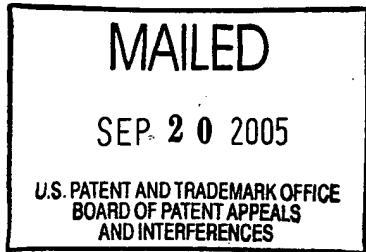


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

## UNITED STATES PATENT AND TRADEMARK OFFICE

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### BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



Ex parte GEORGE STEPHEN MECHERLE,  
and TERRY LEE HOLCOMB

Appeal No. 2005-2084  
Application No. 09/434,913

ON BRIEF

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Before HAIRSTON, GROSS, and BARRY, Administrative Patent Judges.  
HAIRSTON, Administrative Patent Judge.

#### DECISION ON APPEAL

This is an appeal from the final rejection of claims 21, 22, and 26.

The disclosed invention relates to a portable transceiver that uses laser light as the carrier. The transmitter module of the transceiver transmits a plurality of laser signals displaced from one another and facing in parallel directions. The receiver module of the transceiver includes an aperture, a Mangin mirror that focuses the incoming optical beam

onto a photodiode located at the focal point of the Mangin mirror, and the photodiode outputs a signal that is sent through a pre-amplifier, an automatic gain control, and a frequency modulator before being output to audio and video lines.

Claim 21 is illustrative of the claimed invention, and it reads as follows:

21. A portable transceiver of one or more signals, comprising an aperture; a Mangin mirror in line with the aperture; a photodiode at the focal point of the Mangin mirror; an output from the photodiode.

The references relied on by the examiner are:

Mearns	5,969,860	Oct. 19, 1999
Laughlin et al. (Laughlin)	4,054,794	Oct. 18, 1977

Claims 21 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mearns.

Claim 22 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Mearns in view of Laughlin.

Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the obviousness rejections of claims 21, 22, and 26.<sup>1</sup>

Appellants argue (brief, page 6) that the focal point of Mearns is the focal point of the entire system, and not the focal point of the Mangin mirror. We disagree.

Focal Points Are Located on the Focal Plane

First, we believe the Communications Standard Dictionary is the more appropriate reference source than is the Merriam Webster's Collegiate Dictionary.<sup>2</sup> According to the examiner, the Communications Standard Dictionary defines "focal plane as, 'a plane through the focal point perpendicular to the principal axis of the system, such as a lens or mirror'" (answer, page 6). The Communications Standard Dictionary also states "that, '[a] lens or mirror has an infinite number of image points, real or virtual, one for each position of, or point on, the object'" (answer, page 6). Mearns discloses a focal plane formed on the surface of a detector system (column 2, lines 3-4). Therefore, based on the definition of focal plane, we find that focal points are located on the focal plane of Mearns.

The Focal Point Is the Focal Point of the Mangin Mirror

The focal plane in Mearns is both the focal point of the Mangin mirror and the focal point of the entire optical system. The Communications Standard Dictionary states that focal point is synonymous with principal focus point, and defines the latter "as, 'the point to

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<sup>1</sup> Claims 21, 22, and 26 stand or fall together (brief, page 3).

<sup>2</sup> Reply brief, page 3.

which incident parallel rays of light converge, or from which they diverge, when they have been acted upon by a lens or a mirror" (answer, page 6). Mearns discloses a planar Mangin mirror in line with an aperture (Figure 1, item E). The examiner contends, and we agree, that the focal point of a planar mirror lies at infinity when parallel rays of light are directed against it (answer, page 7). However, Mearns discloses the Mangin mirror, together with a concave mirror, forms a relay that transfers radiation from the intermediate image to the focal plane (column 2, lines 1-4). The examiner argues that the "Mangin mirror of Mearns, though planar, has light rays incident upon it that are not parallel, thereby allowing a finite focal point to be formed at the focal plane" (answer, page 7). Thus, to form an image at the focal plane, the rays reflected from the concave mirror must contact the Mangin mirror in a non-parallel manner (Figure 1, rays reflected from item F toward item E). Therefore, we determine that the focal point of a reflective or refractive component depends on the orientation in which rays are directed toward the component and the component's configuration.

We therefore determine that the focal plane of Mearns includes the focal point of the entire optical system because the Mangin mirror is the last element to control the light rays. Additionally, we determine that the focal plane of Mearns includes the focal point of the Mangin mirror because non-parallel rays directed against the Mangin mirror form an image on the focal plane at the focal point of the Mangin mirror. Therefore, we find that

the focal point of the Mangin mirror and the entire system are located at the focal plane of Mearns.

The Photodiode Is at the Focal Point of the Mangin Mirror

The examiner argues that the detector system “inherently comprises a photodetector for the detection of the optical signals” and “it is well known in the art to detect optical signals via a photodiode, then output an electrical equivalent of the detected optical signal” (answer, page 3). We agree. The appellants argue only that Mearns does not teach each of the claim limitations because the focal plane in Mearns does not include the focal point of the Mangin mirror, which means the detector is not located at the focal point of the Mangin mirror. We find supra that the focal plane of Mearns includes the focal point of the Mangin mirror. Furthermore, Mearns discloses the focal plane is formed on the surface of a detector system (column 2, lines 4-5). Therefore, we find that Mearns does disclose a photodiode at the focal point of the Mangin mirror.

The obviousness rejections of claims 21, 22, and 26 are sustained because Mearns discloses a focal plane which includes the focal point of the Mangin mirror.

DECISION

The decision of the examiner rejecting claims 21, 22, and 26 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED



KENNETH W. HAIRSTON  
Administrative Patent Judge



ANITA PELLMAN GROSS  
Administrative Patent Judge



LANCE LEONARD BARRY  
Administrative Patent Judge

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